

Doping and cheating under random inspections in continuous time

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Abstract:

We consider an athlete whose performance and hence success is subject to random shocks. The athlete has the possibility to use drugs to enhance his performance but risks being caught by random doping inspections: if the athlete is doping during an inspection, his career is terminated.

In the first part, we consider the following questions:

- i) under which circumstances does the athlete decide to dope in a rational choice model and
- ii) can the inspection policy be altered in a way to avoid doping of athletes at all.

In the second part we formulate a simple game between two athletes to study the influence of competition upon the doping behavior. The models are formulated as stochastic control problems where performance uncertainty arises from a Brownian Motion and inspections are modeled as a Poisson Process.